

User Guide

topoBuilder Application & OnDemand Topo

For known resolved and unresolved issues, please visit topoBuilder and click on the Help tab located on the left side of the application. For other technical questions, please contact The National Map Help Desk (tnm_help@usgs.gov).

This guide contains the following sections:

Overview	2
Step 1: Choose a Map Type.....	4
Step 2: Select Maps.....	4
Step 3: Cart.....	10
Email Notification of Submitted Maps.....	12
Email Notification and Downloading Maps.....	12
Basic Use of Map PDF Files.....	14
About Map Layers in PDF Files	21

Overview

Using the **topoBuilder** application, users can select a location and generate customized topographic maps that are delivered via email. Users will follow three major steps:

1. **Choose a Map Type:** Users can select a map type(s) best suited for the intended purpose of their map(s).
2. **Choose a Map(s) & Move to Cart:** Users can select maps based on an existing grid or create a custom area. User selected maps are marked and moved to the Cart
3. **Confirm Cart and Submit for Processing:** Users will confirm maps in the cart, edit maps as needed, and submit for processing.

topoBuilder has a wide range of functions. On launch, users will see two distinct sections of the application, the Task Panel and the Map Panel.

Task Panel: This panel is where a user will select their Map Type(s), select and view list of selected maps, edit map options, move maps to the cart, and finally submit for processing.

Map Panel: Contains a map of the United States and its territories. The Map Panel is where a user can pan and view places and select maps using provided tools.

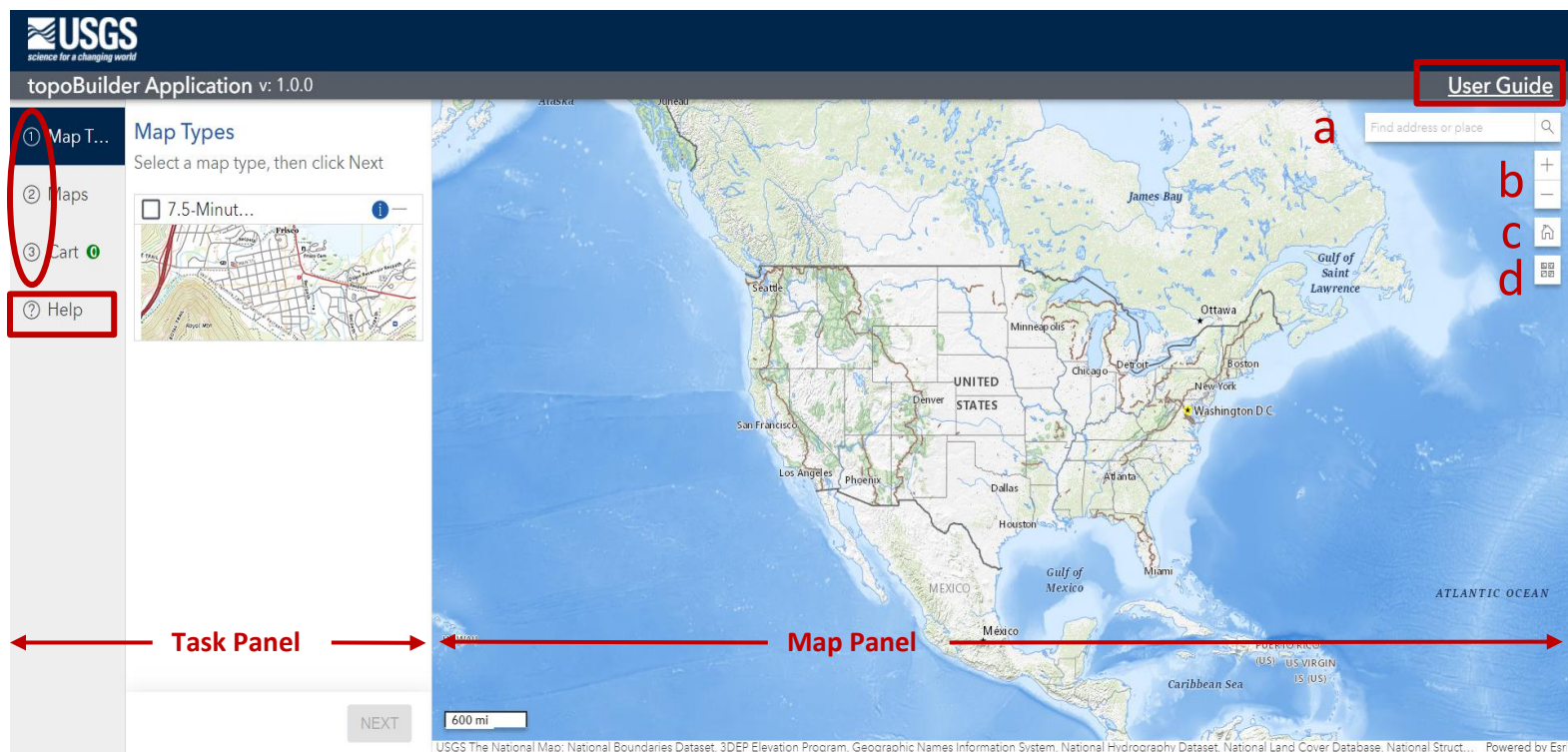
User Guide: A link to this downloadable PDF User Guide

Help: The help tab provides to links to informative sites, as well as contact information for questions and feedback on the web application and map products.

Numbered Steps: The numbered items shown in the Task Panel indicate the sequence of steps a user should take while using the application.

Additional Functions:

- a) **Address Search Bar** – enter a location or address to zoom to in on the map
- b) **Zoom** – use the + and - icons to zoom in and out on the map
- c) **Home** – use this icon to navigate to default extent of the map
- d) **Basemap Layers** – use this menu to choose between various basemap options



Definitions

As users interact with the **topoBuilder**, a few helpful definitions are listed below:

Gridded Map: Maps selected and bounded by the provided grid layout. Gridded maps will have an official name. Format and contour smoothness can be adjusted.

Custom Centered Map: Maps selected from a custom center point placed by the user. The Move tool allows a user to adjust the final placement. A default name is provided. Format and contour smoothness can be adjusted.

Move: The Move tool allows a user to adjust any custom selected map for final placement. The Move tool does not work with Gridded Maps.

Map Type: Map Types may have unique qualities specific to it while some qualities may cross several Map Types. Qualities may include scale, feature content, symbology, page size, or layout. Information icons in the application will contain information unique to each Map Type.

Watchlist: The list of maps in the Maps tab for each selected Map Type. These are user selected maps that have not been added to the cart.

Contours: Contours are lines connecting points of equal elevation on the surface of the land above or below sea level.

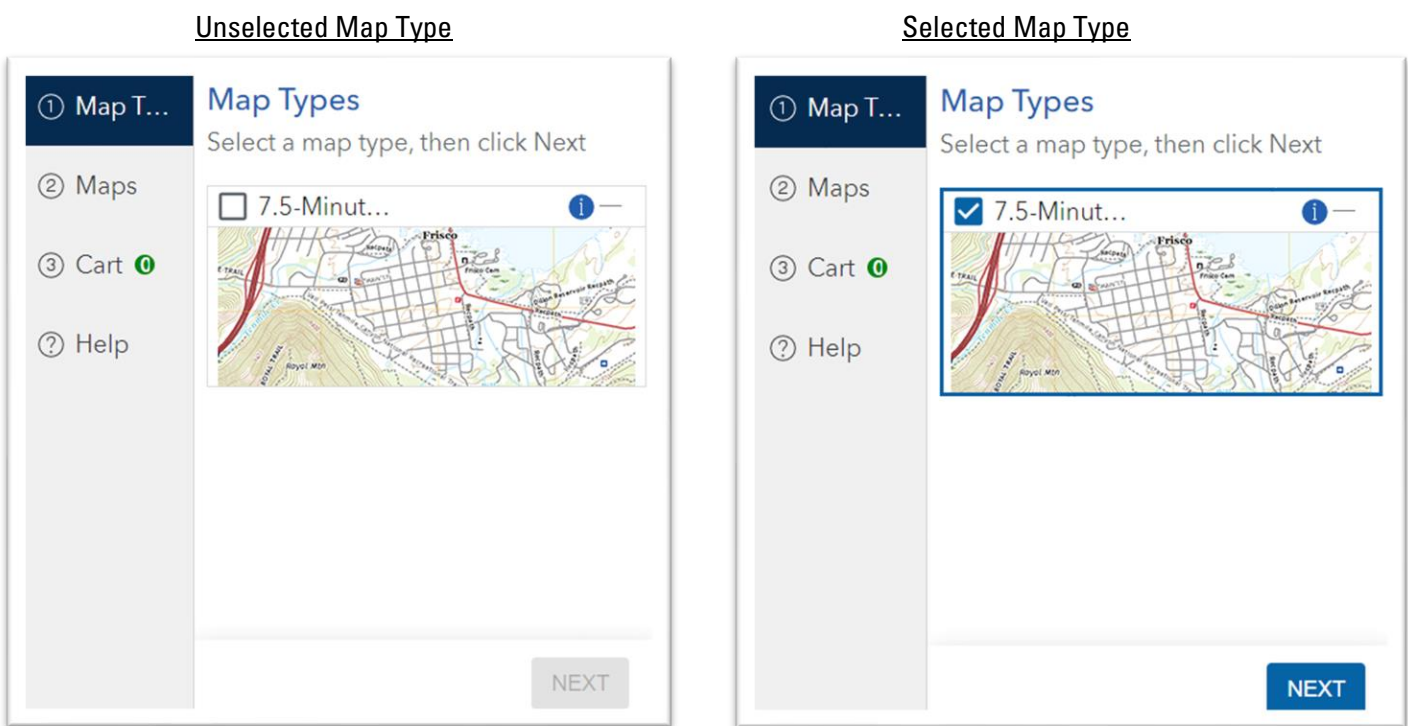
Contour Smoothing: Contour smoothing will adjust how detailed the contour lines will appear on the map. Using specific algorithms, the contours maintain data accuracy but will either show landforms in high detail (Low Smoothness) or landforms with general detail (High Smoothness). An Information icon in the application contains information unique to each setting.

Format: **topoBuilder** provides users with two file formats, geospatial layered PDF and TIFF. See the final section of this User Guide for detailed information on geospatial layered PDFs. TIFF files come in two types, GeoTIFF, and TIFF, depending on location. Alaska, Hawaii, Puerto Rico, and U.S. Virgin Islands are provided as TIFF. Conterminous U.S. and the Pacific Territories are provided as a GeoTIFF.

Step 1: Choose a Map Type

Upon launch of the application, the “Map Type” tab is activated by default. Click “i” icon for more information.

- Select a Map Type by checking the appropriate map type box
 - A blue checkmark appears along with a blue highlight box around the map thumbnail showing a selection has been made. The “Next” button becomes available at the bottom of the Task Panel to proceed further.
- Click “Next” to proceed



Step 2: Select Maps

The Maps tab will have the selected Map Types from Step 1. Click on one of the Map Types to begin choosing the desired map locations. The Map Type will be highlighted in blue with a blue checkbox. Note the Select Tool Bar is displayed on the map. Details on this toolbar are discussed below.

Tips on Selecting Maps:

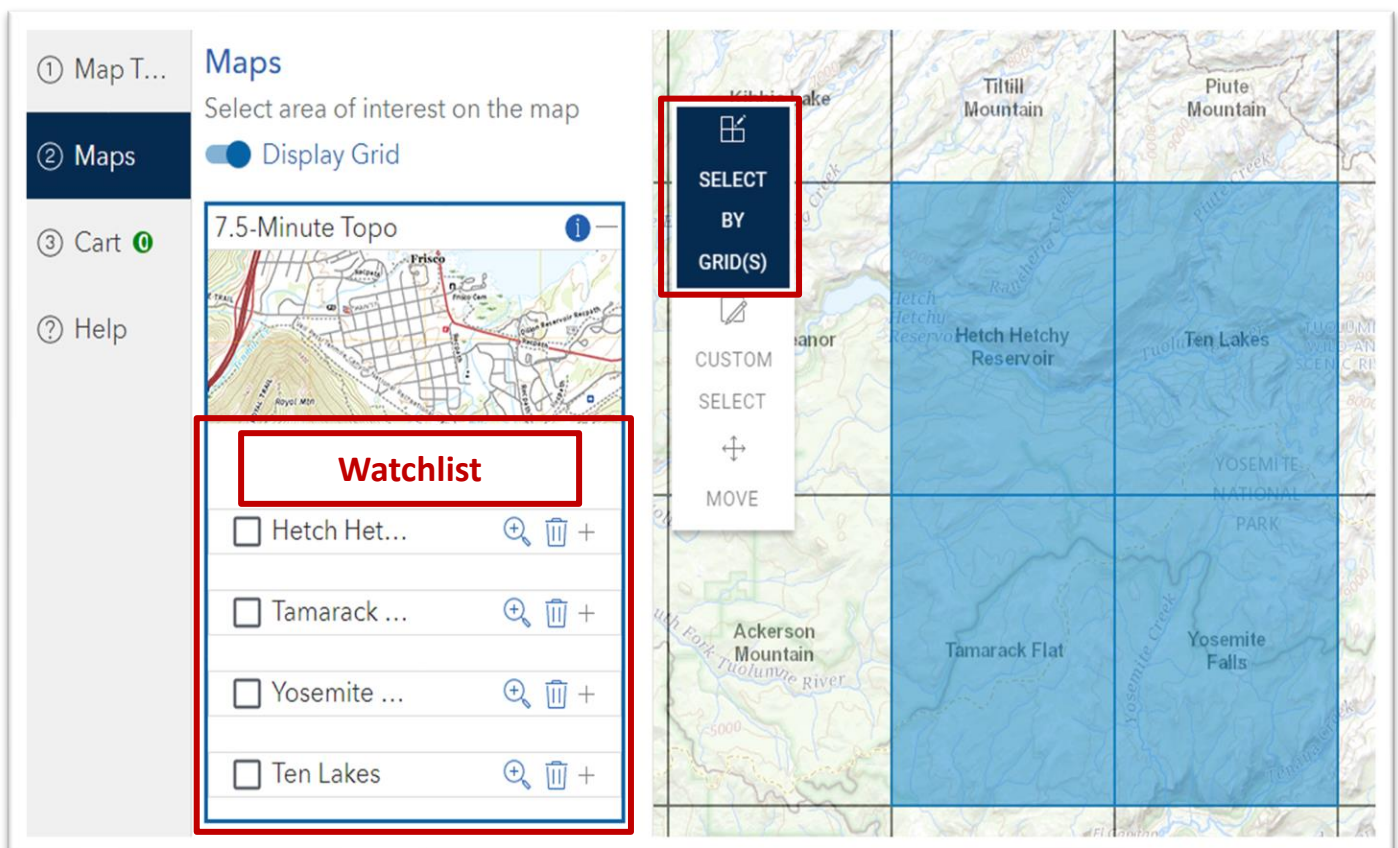
- Use left click-hold (mouse) or keyboard arrow keys to pan around the Map Panel

- User either the mouse's roller button or the Zoom tool (+ and -) in the Map Panel to zoom in to a desired area within the map.
- Type an address, city, or landmark into the Address Search Bar to zoom to a desired area within the map. The following U.S. Territories are included in the Search.
 - Puerto Rico
 - U.S. Virgin Islands
 - American Samoa
 - Guam
 - Northern Mariana Islands
- For maps along the U.S. border, areas of the map outside the United States may not include complete data.
- If the map is almost entirely outside the United States, elements of the map layout such as the map title may become generic (example: "MAP TITLE").
- Outside the United States, gridded maps are not available to select, and custom selection are not permitted. Custom selections MUST intersect a grid line to process properly.

Select by Grid

This option selects a map that is bounded by predefined grid lines.

- Click "Select by Grid" option and zoom into the desired location on the map.
 - Grids will not appear until zoomed in on the Map Panel.
 - Map names in the grid will appear when zoomed in. These are official USGS map names. When Select by Grid is used, the map name will be used by default.
- Click on desired map.
 - Selected maps will be displayed in transparent blue
 - Maps will be seen in the Task Panel and become part of the Watchlist.

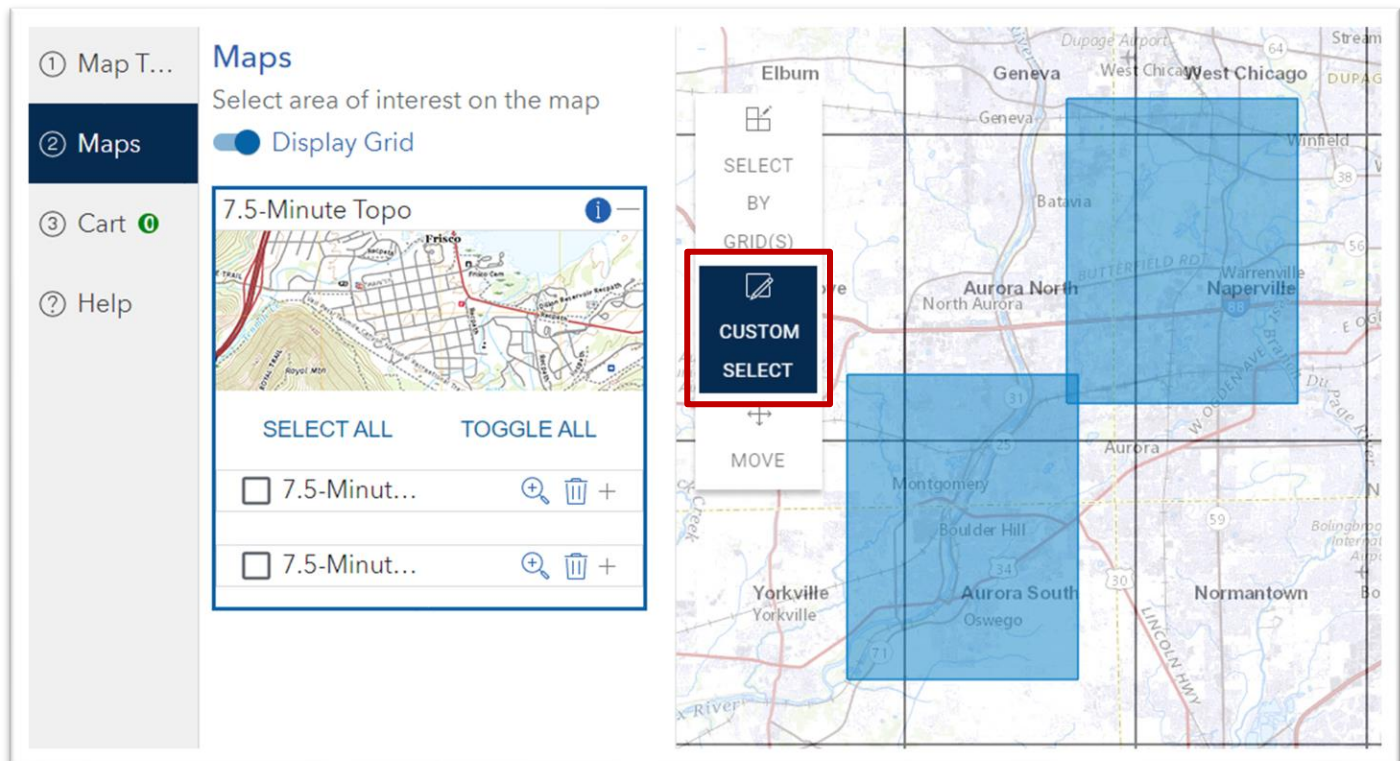


Custom Select

This option allows the user to custom center a map, irrespective of the grid lines.

- Choose the “Custom Select” tool and click anywhere in the United States and its territories.
- A map will be placed centered on the cursor.
- Continue to use custom select as desired to place multiple maps.

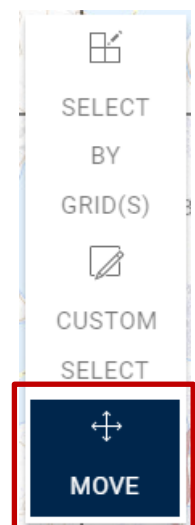
Note: Users can choose maps using both Select by Grid and Custom Select.



Moving Custom Selections:

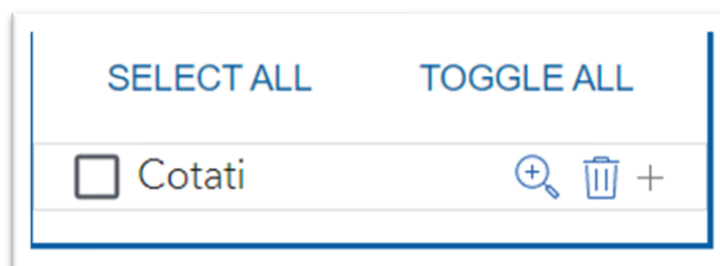
This tool allows the user to move a custom selection. Maps selected using the Select by Grid option cannot be moved.

- Choose the “Move Tool” and click on a single custom selected map.
- Left click and hold to drag the map to the desired location





Task Panel Tools



Select/Unselect All: Allows a user to select/unselect all the maps in the Watchlist at once. Maps will have a blue checkbox and the map(s) in the Map Panel will have a yellow highlighted outline

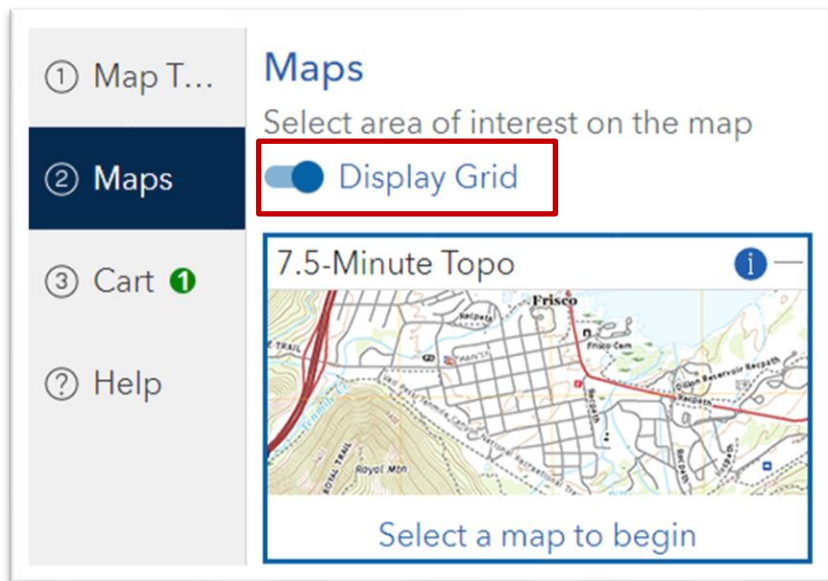
Show/Hide Options: Toggle All will expand/collapse the Map Customization Options (details below) for all maps in the Watchlist at once.

Edit map name (Coming Soon): Every map can be given a custom name. Click on the pencil icon and replace the default name with a new name. Restriction do apply. Map names must have at least 1 character and no more than 39. Special characters such as @, \$, %, are not allowed. A red-! symbol will appear if an unacceptable character is used or if more than 39 characters are added.

Zoom to map: The magnifying glass will zoom to the map extent and center it on the Map Panel.

Deleting maps: Clicking the trashcan icon will delete the selected map from the list. A Confirm on Delete pop-up will appear when a user attempts to delete a map. Click, OK, to confirm deletion. If desired, click the checkbox beside the, 'Do not show this again', to keep the pop-up from occurring every time.

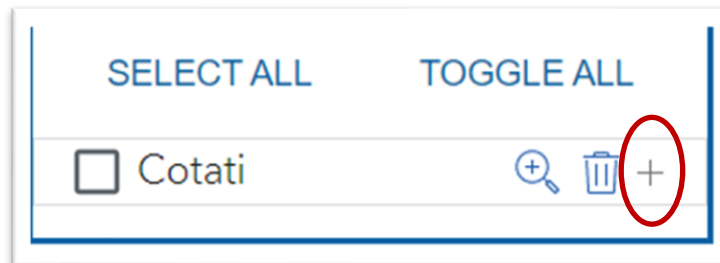
Display Grid: Users have the option toggle the grid on or off once it appears in the Map Panel. The grid does not need to be turned on to select a map using either the Select by Grid or Custom Select tools.



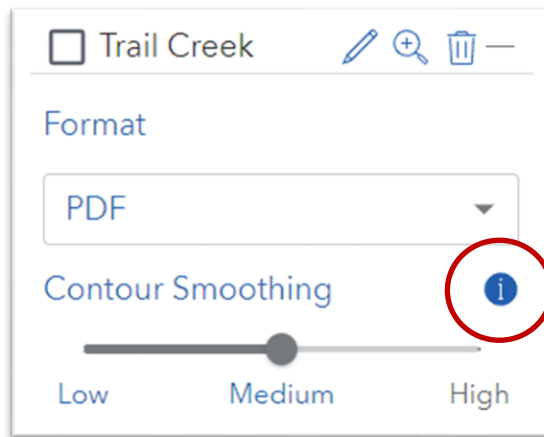
Map Customization Options:

Every map can be altered in two ways, Format and Contour Smoothness.

- Click the + icon in the Task Panel Tools. Map Options will expand.

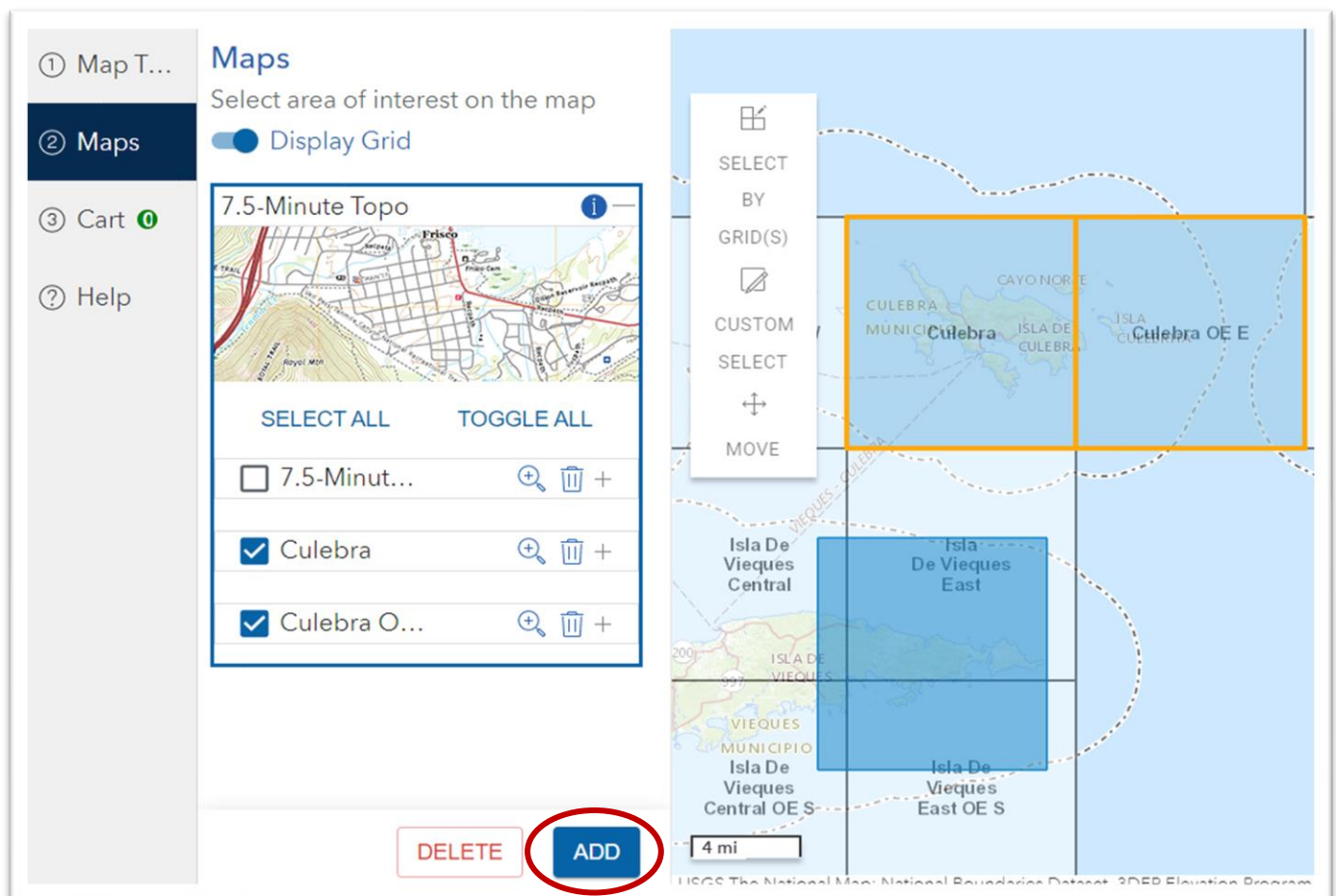


- Revisit the definitions of Contour Smoothing and Format
 - **Format:** [topoBuilder](#) provides users with two file formats, geospatial layered PDF and TIFF. See the final section of this User Guide for detailed information on geospatial layered PDFs. TIFF files come in with two type, GeoTIFF, and TIFF, depending on location. Alaska, Hawaii, Puerto Rico, and U.S. Virgin Islands are provided as TIFF. Conterminous U.S. and the Pacific Territories are provided as a GeoTIFF.
 - **Contour Smoothing:** Contour smoothing will adjust how detailed the contour lines will appear on the map. Using specific algorithms, the contours maintain data accuracy but will either show landforms in high detail (Low Smoothness) or landforms with general detail (High Smoothness). An Information icon in the application contains information unique to each setting.



Adding Maps to the Cart

Multiple maps may be in the watchlist. Users must decide which maps will be added to the Cart.



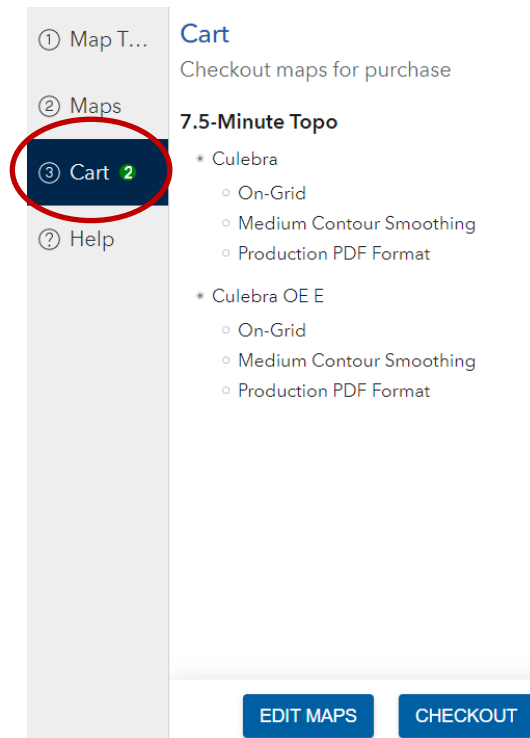
- In the Watchlist, click the checkbox left of the map name for any map(s) that should be added to the Cart. If all maps are wanted, the Select All button can be used.
 - The checkbox will turn blue

- The map in the Map Panel will have a yellow highlighted outline
- Click the Add button at the bottom of the Task Panel
- The map will disappear from the Watchlist and move into the Cart.
- The Cart icon in the left tabs will show the total count of maps in the cart as the user adds more maps.

Step 3: Cart

The Cart allows a user to review their order, edit or delete maps, and submit the order for processing.

- Click on the Cart Tab in the Task Panel



Checking list for accuracy: Each map will have a list of unique details based on earlier selections.

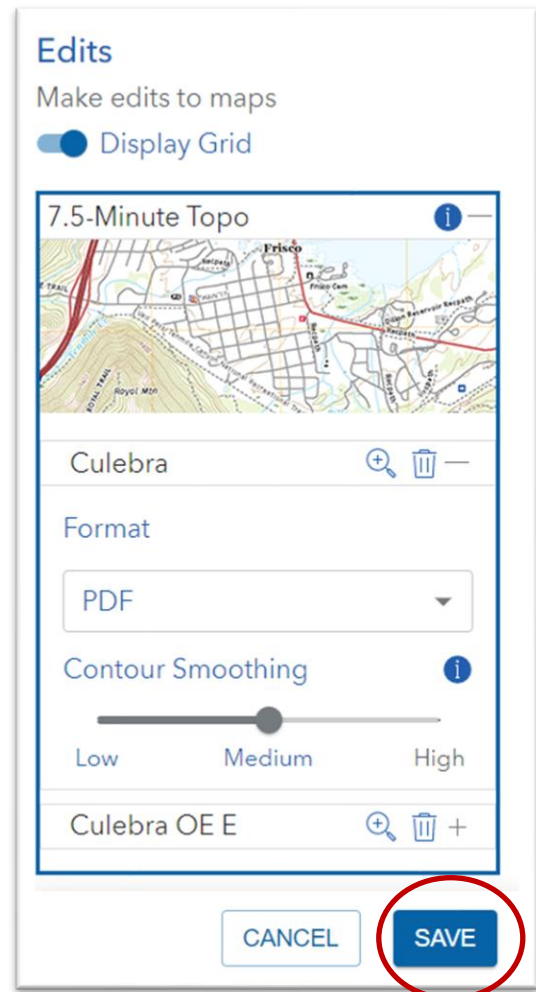
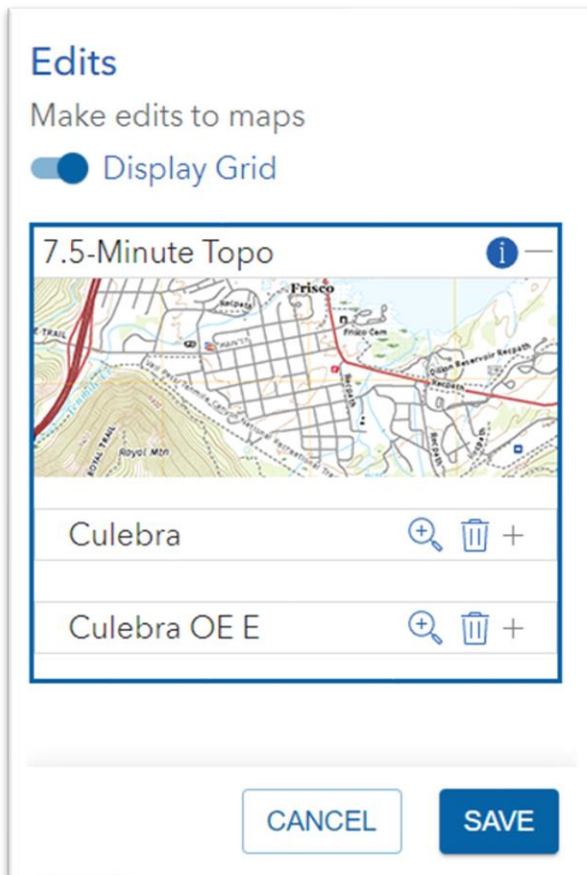
- Map Type
 - Map Name
 - On-Grid or Custom Extent
 - Contour Smoothing option
 - Format

If a modification is required, the maps can still be edited using the Edit Maps button at the bottom of the Task Panel.

Editing Cart Content

The Edits panel will be separated into each Map Type, similar to the Maps tab used earlier.

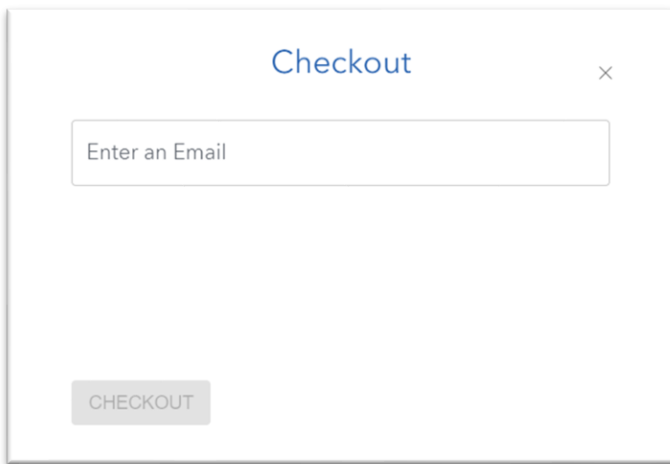
- Expand the map options.
- Change details as desired.
- Once complete, click the Save button to save edits. If edits should be discarded, click Cancel.
 - **Warning!** Click Save or changes will not be saved.
- The panel will return to the main Cart tab



Checking Out

Once the Cart is complete and accurate, click the Checkout button located at the bottom of the Task Panel in the Cart tab.

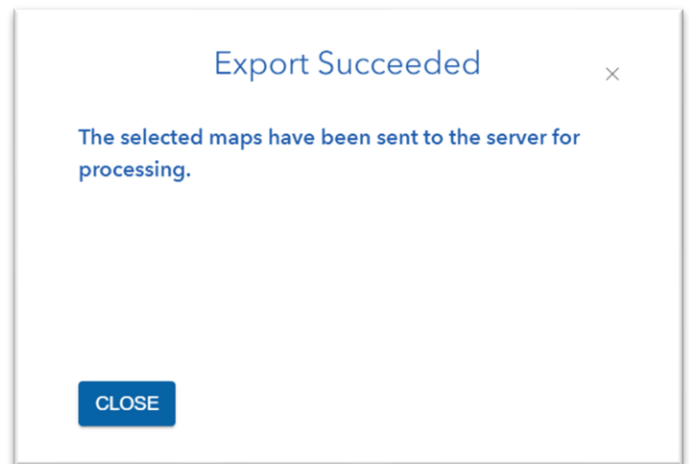
- Enter an email address in the pop-up. The Checkout button will activate when text is entered.
- Click Checkout
- An Export Succeeded message will appear. The map(s) are now in the system and will be add to the queue for processing.
- Click Close to return to the application

A dialog box titled "Checkout" with a close button (X) in the top right corner. It contains a text input field with the placeholder text "Enter an Email". At the bottom left, there is a grey button labeled "CHECKOUT".

Checkout

Enter an Email

CHECKOUT

A dialog box titled "Export Succeeded" with a close button (X) in the top right corner. It contains the text "The selected maps have been sent to the server for processing." At the bottom left, there is a blue button labeled "CLOSE".

Export Succeeded

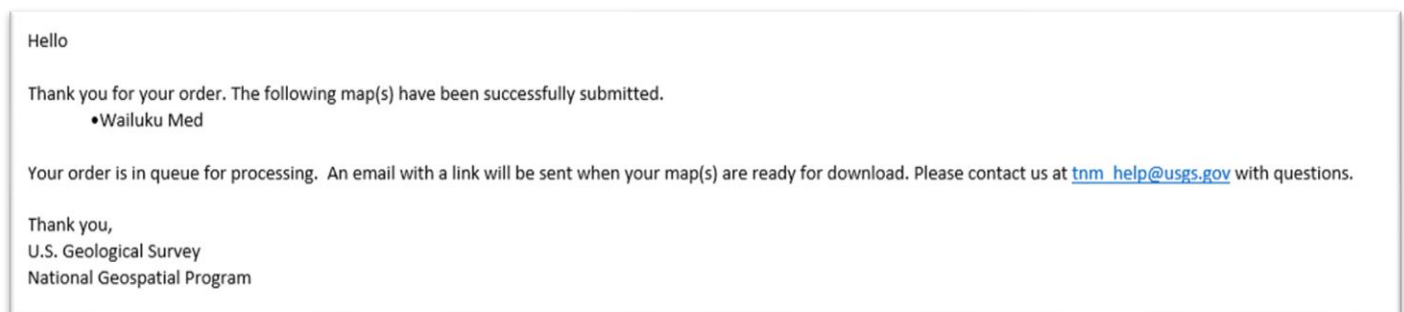
The selected maps have been sent to the server for processing.

CLOSE

Email Notification of Submitted Maps

After checkout, users will receive an email with a list of maps submitted. No action by the user is necessary. A link to the tnm_help@usgs.gov is included in the event of questions or comments.

Sample Email:

A sample email content displayed in a light grey box. The text is as follows:

Hello

Thank you for your order. The following map(s) have been successfully submitted.

- Wailuku Med

Your order is in queue for processing. An email with a link will be sent when your map(s) are ready for download. Please contact us at tnm_help@usgs.gov with questions.

Thank you,
U.S. Geological Survey
National Geospatial Program

Email Notification and Downloading Maps

When the map is ready, users will receive a "Completed Map Request" email with a link to download the map.

For best results, open the email on a desktop or laptop computer. The appearance of the email will depend on the display settings.

Sample Email:

Hello

Thank you for your order. The following map has completed successfully and is ready for you to download. Follow the link provided to access your map.

WailukuMed

- Grid Selected Area Map
- Contour Smoothness: Medium
- 24K Topographic Map Type
- 1:25000 Scale
- Production PDF Format

https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fngtcc-dynamap-dev.s3-us-west-2.amazonaws.com%2FMapDelivery%2FHI_WailukuMed_20211115_151608_TM_geo.pdf&data=04%7C01%7Csboyer%40usgs.gov%7C2c7591bcd7ce4f8d8efb08d9a8504a8e%7C0693b5ba4b184d7b9341f32f400a5494%7C0%7C0%7C637725888203789353%7CUnknown%7CTWFpbGZsb3d8eyJWljoImMC4wLjAwMDAiLCQlQlQlV2luMzliLlCjBTRi6k1haWwlcjXVCi6Mn0%3D%7C3000&data=aT%2FpyslJoXva8ukT1jLs7Lp18wZzUXg6%2B7CtjVbD3f0%3D&reserved=0

The file will be deleted on: 2021-12-15.

Please contact us at tnm_help@usgs.gov with questions.

Thank you,
U.S. Geological Survey
National Geospatial Program

i. **Map name**

ii. **Map Details**

iii. **Link to download the map.** The link is sharable for others to use.

iv. **Expiration date:** Please download the map before the expiration date in the email.

Click the link to download the map. Depending on the default web browser and output settings, the map file may:

1. Desktop Options

- a. Download automatically to the Downloads folder.
- b. Prompt the user to choose a location for the file; save it to a desired location.
- c. A choice of whether to run the file or save it; choose 'Save As' and save the file to a desired location.

2. Mobile – Options for downloading on a mobile device will vary depending on OS and installed applications.

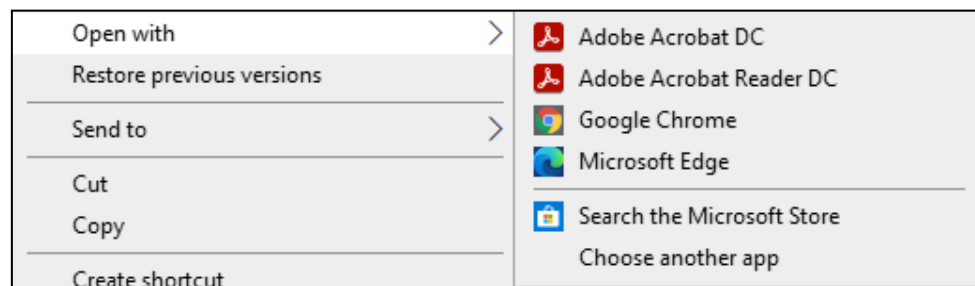
Basic Use of Map PDF Files

Introduction

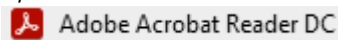
1. topoBuilder produces maps in a [PDF](#) format with geospatial information. These geospatial PDFs have added features that enhance their use for navigation and geospatial analysis. This section is intended as a quick guide to opening and using geospatial PDFs.
2. This section is written primarily for Microsoft® operating systems. Examples are from Windows 10, though other Windows versions and Mac OS® will be similar. See note below regarding other operating systems.
3. For more details, see the [map guide](#) for the related US Topo product, specifically the sections on “Geospatial Functions”, “Notes on Coordinate Presentation” and “Non- Windows, Non-Geospatial, and Other Uses”.

Opening a Map PDF File Using a Web Browser, Acrobat Reader or Acrobat Pro

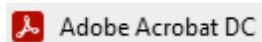
1. Locate the map file using File Explorer.
2. Right click the file, click ‘Open With’ and choose how to want to open the map. Specific choices will depend on the system configuration.



- a. By default, the map PDF file will often open in a web browser. Users can also choose the web browser from the list presented. The map will display properly but the advanced features described below will not be available.
- b. Many computers include the free Adobe Acrobat Reader. If not installed (click [here](#) to download and install it). Reader has access to most features described below. Choose ‘Adobe Acrobat Reader DC’.



- c. Adobe Acrobat Standard or Pro have enhanced authoring tools. If installed (available [here](#)) choose ‘Adobe Acrobat DC’.



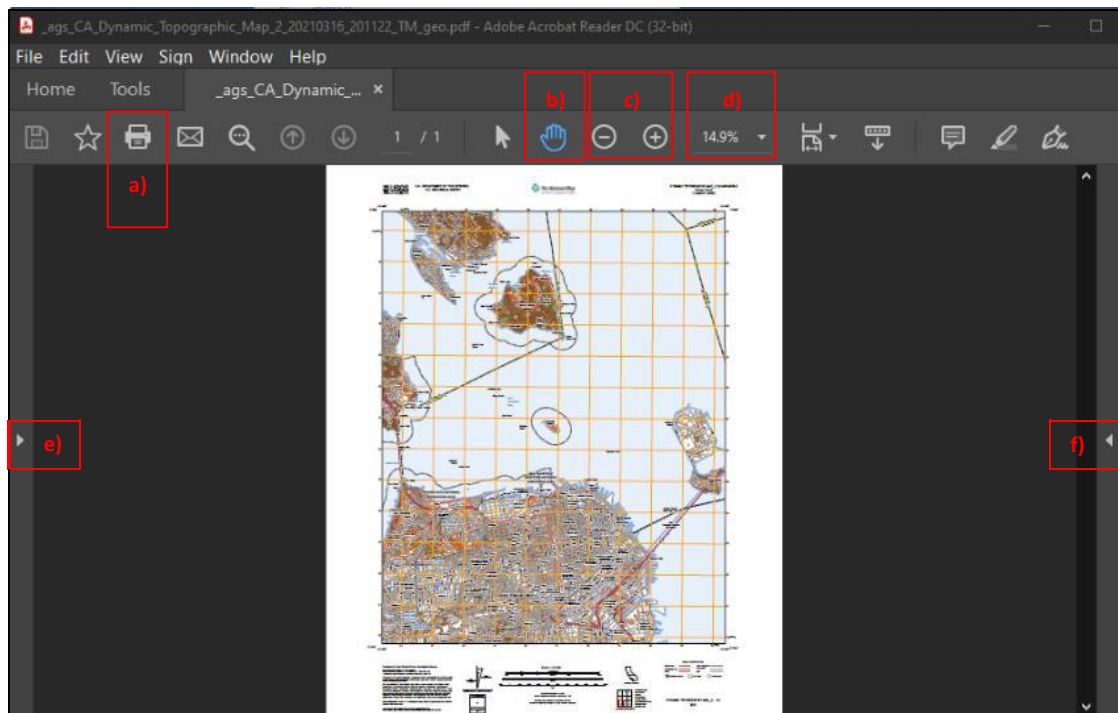
Basic Map Use with Acrobat Reader, Acrobat Standard and Acrobat Pro


Note: if the PDF file opens with a yellow warning message across the top of the screen, click ‘Enable All Features’

Protected View: This file originated from a potentially unsafe location.


Enable All Features

1. Commonly used tools and other interface elements.





a) Print button.  Press to see options for printing.

b) Pan button.  Click and drag to pan around the map.


c) Zoom In / Zoom Out Buttons. 

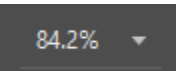
d) Scale Menu. 

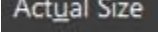

e) Click the arrow on the left side of the screen  to show the Navigation Pane.

f) Click the arrow  on the right side of the screen to show the Tools Pane.

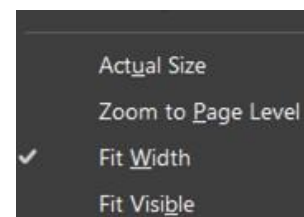
2. Setting the scale of the viewer.

a. Click the Zoom In or Zoom Out Buttons. 

b. Click the Scale Menu  and select a scale level or select an option at the bottom of the list:

- i. Actual Size changes the scale to 100%. 
- ii. Zoom to Page Level changes the scale to fit the entire map into the Acrobat window. 

iii.



- iv. Fit Width changes the scale to fit just the width of the map into the Acrobat window.

Fit Width

3. Using the Navigation Pane

- a. Click the arrow on the left side of the screen to show the Navigation Pane
- b. The Navigation Pane will open. Different versions of Adobe Acrobat may show different options, but these two buttons should always be visible:

- i. Attachments.

- ii. Layers.

c. Attachments

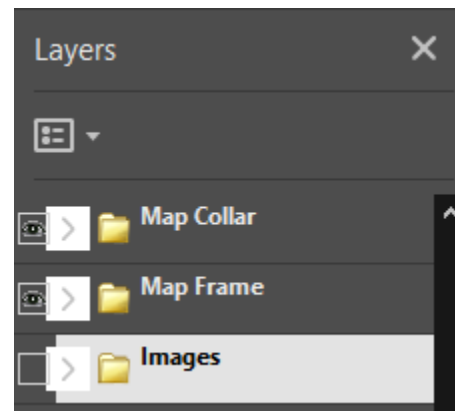
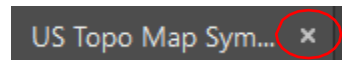
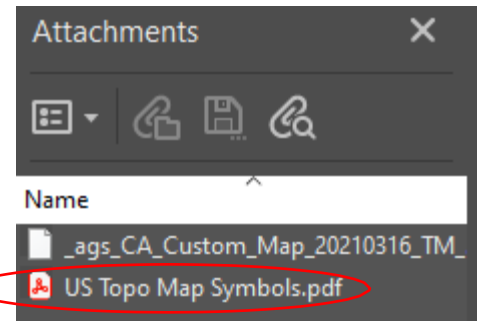
- i. Click the Attachments button to open a window showing documents attached to the map PDF file.
- ii. Double-click "US Topo Map Symbols.pdf" to open a visual guide to map symbols in a new tab. (This document also represents symbology for OnDemand Topo)

- iii. Click the 'x' button on the tab to close the Map Symbols guide.

- iv. An XML file with detailed metadata for the map is also attached.

d. Layers


- i. Click the Layers button to open a list of map layers.
- ii. See [Section VIII About Map Layers](#) for detailed information about map layers and how to use them

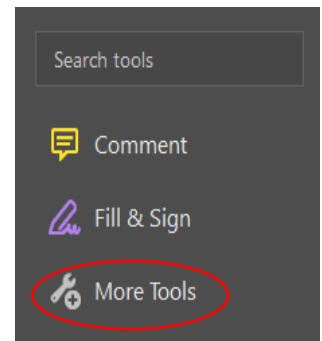


4. Geospatial Tools

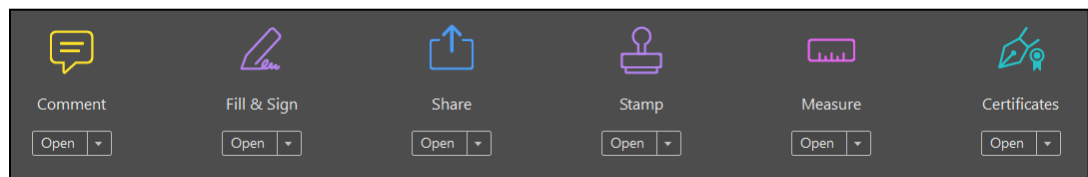
- a. The Geospatial Tools allow users to measure distances and areas within the map, and to determine coordinates for navigation.

- b. Showing the Geospatial Tools.

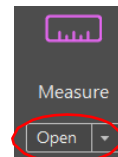
- i. Click the arrow  on the right side of the screen to show the Tools Pane.
 - ii. The Tool Pane will open. Different versions of Adobe Acrobat may show different options, but the More Tools button should always be visible
 - iii. Click the More Tools button.



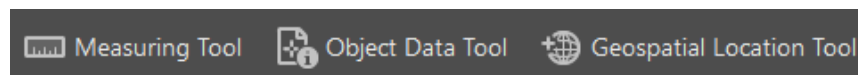
- iv. Depending on system settings, users will see a list of available tools, like the list below.



- v. Find the Measure tool and click 'Open'



- vi. A list of Geospatial tools should appear at the top of the screen:

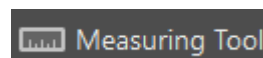


1. The Measuring Tool
2. The Geospatial Location Tool

- c. Using the Measuring Tool.

- i. The Measuring Tool allows users to measure distances and areas in the map in a variety of scaled units (miles, kilometers etc.).

- ii. Click the Measuring Tool button.

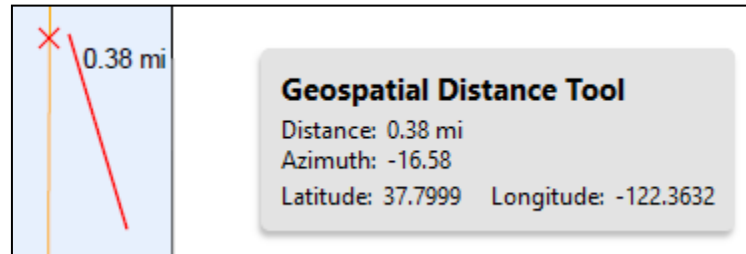


- iii. By default, the tool will measure distance in a straight line ('the



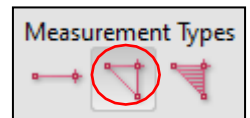
1. Left click within the map to start a measurement line.
2. Distance is shown in the lower right corner.

3. Left click again to stop measuring.

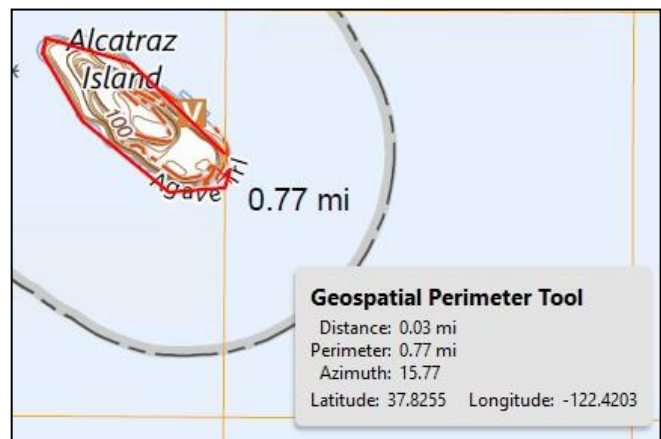


- iv. To measure distance along multiple legs (for example, along a trail or shoreline) or to calculate the perimeter of a feature, use the Perimeter Tool.

1. Click the Perimeter Tool button within the Measurement Types window in the upper right corner of the map.

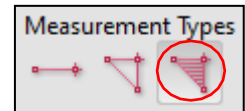


2. Left click within the map to start a line or leg of the measurement.
3. Left click once to add a point and continue measuring. Add as many points as needed.
4. Length is shown in the lower right corner.
5. Double left click to stop measuring.



v. To measure the area of a feature, use the Area Tool.


1. Click the Area Tool button  within the Measurement Types window in the upper right corner of the map.



2. Left click within the map to start drawing a shape.

3. Left click once to add a point and continue drawing the shape. Add as many points as needed.

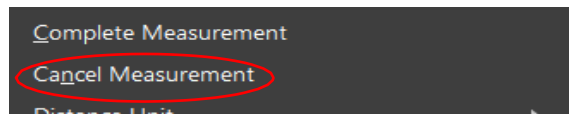
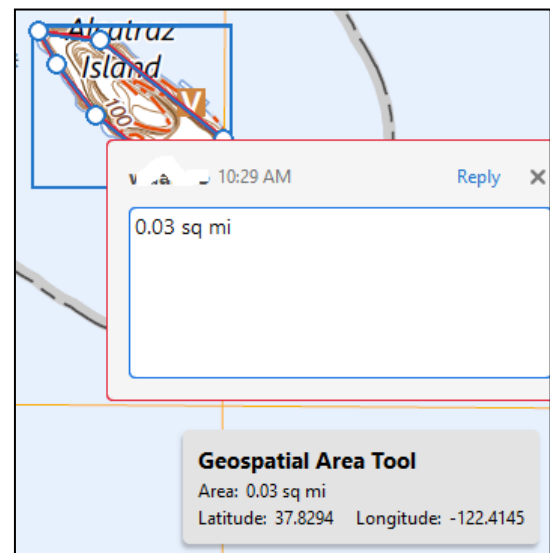
4. Note: do not overlap when drawing the shape.

5. The last point of the shape MUST be placed at the first point. Move the cursor over the first point until a little circle appears below and to the left of the cursor arrow. .

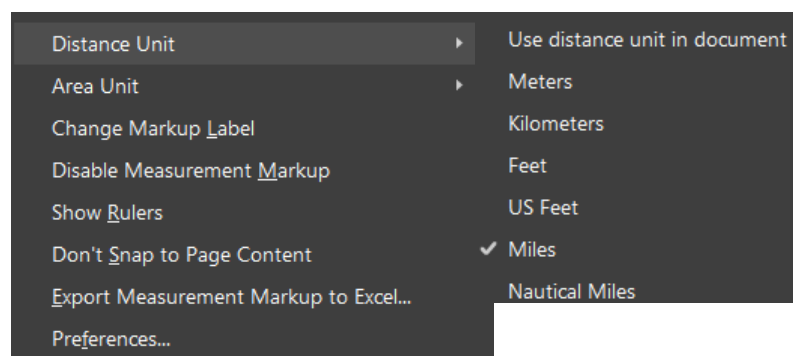
6. Double left click this point to stop drawing and 'close' or finish the shape. If an error message is received, repeat the step above.

7. The shape's area is shown in the lower right corner and in a box that open after the polygon is completed.

8. Note: Cancel drawing the shape by right clicking the map and choosing 'Cancel Measurement' from the top of the menu.



vi. To change distance or area units, right click the map.

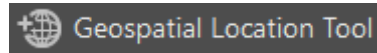


1. Click the Distance Unit or Area Unit menus.

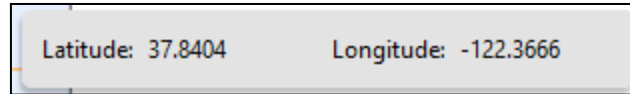
2. Make a selection from the list of available units.

d. Using the Geospatial Location Tool

- i. The Geospatial Location Tool allows users to see latitude-longitude coordinates for map locations.
- ii. Click the Geospatial Location Tool button.

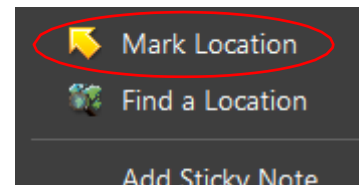


- iii. Move the cursor over the map.
- iv. Coordinates are shown in the lower right corner.



- v. To copy the coordinates for use in a different application,

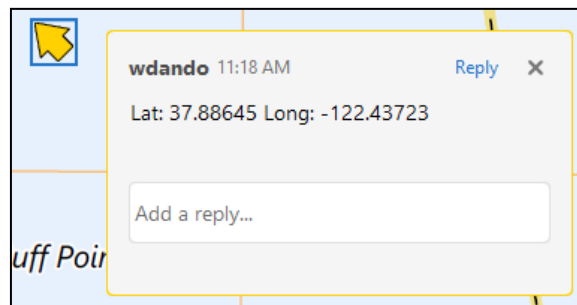
1. Right click the point of interest.
2. Choose 'Mark Location' from the list.



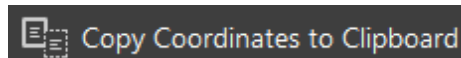
3. A marker will appear on the map.



4. Click the marker to open a popup window with the coordinates, which can be copied and pasted into a different application.



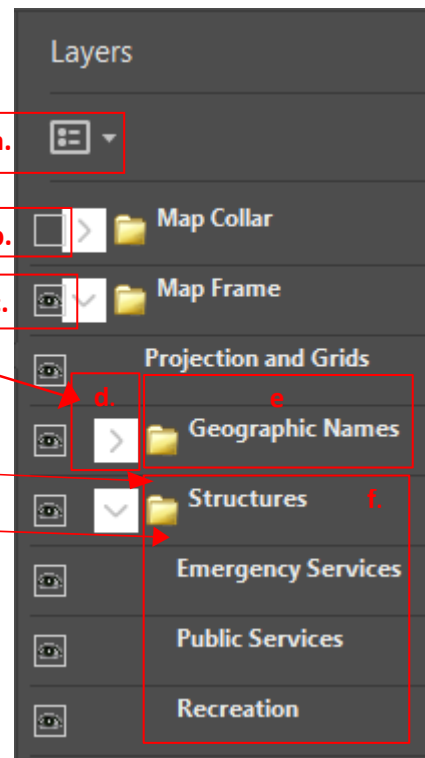
5. Note: Adobe Acrobat Pro users can also copy coordinates directly from the map by right clicking on the map at the desired point and choosing 'Copy Coordinates to Clipboard'.



About Map Layers in PDF Files

1. Description of layer settings.

- a. Options menu.
- b. Empty visibility box: layer group IS NOT currently visible in the map.
- c. Visibility box with eye: layer group IS currently visible in the map.
- d. Arrow box (click to expand or collapse groupsof layers).
- e. Collapsed group (individual layers not visible).
- f. Expanded group (individual layers or subgroups visible).

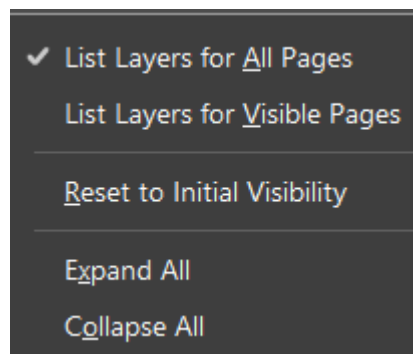


2. How to expand or collapse a single layer group at a time.

- a. Click arrow box to expand that group.
- b. Click arrow box again to collapse that group.



3. How to expand or collapse all layer groups at once.

- a. Click the Options menu at the top of the Layer list.



- b. The Options menu opens.
- c. Click 'Expand All'.
- d. Click 'Collapse All' to restore the layer list to the default view.

4. How to make layers visible on the map.

- a. Click empty box to make a layer visible on the map. 
- b. Click creepy eye to turn layer off. 
- c. Note: layer visibility can be controlled for the group or the individual layer. If layer visible is changed and nothing changes in the map, make sure the group containing that layer is also set to visible.
- d. Restoring default settings.
 - a. Changes will not save with the map. If the PDF is closed and reopened, the PDF layers will reset to the original settings.

- b. As an alternative, open the Options Menu at the top of the Layers list. 

- c. Click 'Reset to Initial Visibility' to immediate restore the original settings.

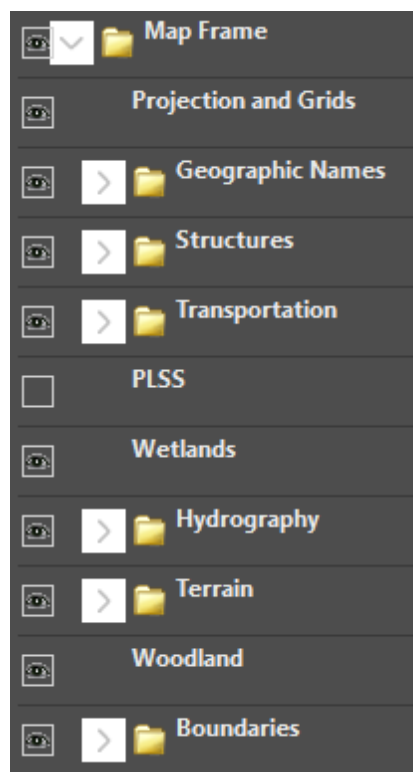
[Reset to Initial Visibility](#)

5. Description of top-level layer groups

- a. The Map Collar layer group includes everything outside the main map frame, including the map title, logos, notes, and the locator maps at the bottom of the page.
- b. The Map Frame layer group includes the main map frame and all its individual layers. See below for more details.
- c. The Images layer group includes aerial photography (orthophotography) of the map area, if available.

6. Description of selected Map Frame layer groups.

- a. The Projections and Grids layer contains the coordinate grid drawn by default over the map and the coordinate references along the map frame.
- b. The Geographic Names layer group contains labels for Natural Features like rocks and islands, and Populated Places such as towns and cities.
- c. The Structures layer group contains layers for point features like schools, city halls, campgrounds, and hospitals.
- d. The Transportation layer group contains layers for airports, roads, railroads, trails, and ferries.
- e. The PLSS layer contains the grid and labels for the Public Land Survey System, where available.
- f. The Hydrography layer group contains layers for rivers, lakes, and other water features.



- g. The Terrain layer group contains layers for elevation contours and shaded relief.
- h. The Boundaries layer group contains layers for civil boundaries such as states and territories and federal lands such as National Cemeteries and National Monuments
- i. Note: if a layer has no features within a map, that layer will not appear in the Layer list. For example, if a map has no Airports visible, then there will be no Airports layer in the list.

7. Examples of different layer settings

